Southern plateau.—From 26° at Fort Grant, Arizona, on the 31st, to 40° at Fort Apache, Arizona, on the 13th and 30th.

Northern plateau.—From 42° at Spokane Falls, Washington Territory, on the 15th, to 50° at Dayton, Washington Territory, on the 19th.

North Pacific coast.—From 27° at Olympia, Washington Territory, on the 27th, to 32° at Portland, Oregon, on the 26th.

Middle Pacific coast.—From 21° at Cape Mendocino, California, on the 6th, to 38° at Sacramento, California, on the 2d.

South Pacific coast.—From 34° at Yuma, Arizona, on the 14th, to 38° at Los Angeles, California, on the 6th.

Table of Maximum and Minimum Temperatures for August, 1883.

State or Territory.	Signal Service.			U. S. Army Post Surgeons, or Voluntary Observers.		
	Station.	Max.	Min.	Station.	Max.	Min.
		°	°		°	°
Alabama	Mobile	99	68	Birmingham	99	56
Do	Montgomery	97	65	Tuscaloosa	97	47
Arizona	Yuma	111	74	Texas Hill	119	82
Do	Fort Apache	92	50	Fort Bowie	96	61
Arkansas	Fort Smith	100	61	Lead Hill	102	56
Do	Little Rock	98	62	Mount Ida	90	50
California	Red Bluff	101	56	Whitewater	113	80
Do	Cape Mendocino	68	47	Summit	75	42
Colorado	West Las Animas	100	52	Fort Lyon	101	51
Do	Pike's Peak	53	31	Fort Garland	82	38
Connecticut	New Haven	85	48	Southington	89	46
Dakota	Yankton	98	42	Fort Randall	99	40
Do	Fort Buford	96	36	Fort Meade	98	38
Delaware	Del. Breakwater	87	64			
District of Columbia	Washington	94	55	West Washington	95	52
Florida	Sanford	97	69	Limona	99	70
Do	Pensacola	92	70	Live Oak	100	62
Georgia	Augusta	96	63	Way Cross	105	64
Do	Atlanta	91	60	Toccoa	97	51
Idaho	Fort Lapwai	108	36	Fort Lapwai	108	38
Illinois	Cairo	92	61	Mattoon	96	52
Do	Chicago	89	54	Polo	90	43
Indiana	Indianapolis	91	53	Clinton	95	46
Do				Spiceland	91	46
Indian Territory	Fort Supply	96	59	Fort Reno	96	57
Iowa	Dubuque	92	49	Fort Madison	98	52
Do	Des Moines	91	48	Nora Springs	88	42
Kansas	Leavenworth	93	53	Fort Scott	97	61
Do				Holton	94	46
Kentucky	Louisville	94	58	Frankfort	93	47
Louisiana	New Orleans	92	74	Coushatta	103	56
Maine	Portland	87	48	Orono	84	36
Maryland	Baltimore	92	59	McDonogh	94	45
Do	Ocean City	85	57	Woodstock	92	50
Massachusetts	Boston	92	48	Milton	98	47
Do	Provincetown	90	53	Rowe	84	37
Michigan	Port Huron	90	48	Thornville	94	52
Do	Marquette	88	35	Harrisville	93	33
Minnesota	Saint Vincent	82	39	Minneapolis	94	50
Do	Saint Paul	88	46	Fort Snelling	96	42
Mississippi	Vicksburg	96	65	Meridian	103	48
Missouri	Saint Louis	97	58	Greenfield	98	56
Do				Centreville	94	47
Montana	Fort Custer	101	36	Fort Keogh	103	36
Do	Fort Shaw	90	33	Fort Ellis	93	26
Nebraska	North Platte	92	48	Fort Niobrara	102	40
Do	Omaha	91	52	Fort Robinson	94	37
Nevada				Hot Springs	103	46
Do				Boca	88	38
New Hampshire	Mount Washington	58	20	Grafton	88	35
New Jersey	Little Egg Harbor	92	55	Moorestown	94	54
Do	Atlantic City	91	55	Phillipsburg	84	46
New Mexico	Fort Bayard	98	55	Lordsburg	100	70
Do				Fort Union	85	42
New York	Oswego	89	52	North Volney	92	53
Do	Buffalo	84	47	Johnstown	88	34
North Carolina	Wilmington	96	62	Chapel Hill	101	53
Do	Smithville	92	58	Highlands	83	45
Ohio	Cleveland	92	48	College Hill	99	54
Do	Columbus	92	50	Wauseon	93	41
Oregon	Roseburg	86	45	Fort Klamath	90	35
Do	Portland	80	44	Eola	87	55
Pennsylvania	Erie	92	50	Grampian Hills	94	44
Do	Philadelphia	90	58	Dyberry	87	37
Rhode Island	Narragansett Pier	85	45			
South Carolina	Charleston	96	65	Stateburg	95	60
Tennessee	Memphis	94	62	Andersonville	94	50
Do	Knoxville	94	53	Grassy Cove	89	43
Texas	Fort Concho	103	61	Cuero	106	68
Do	Stockton	98	54	Paris	103	61
Utah	Salt Lake City	94	52	Corinne	105	65
Do				Ogden	102	44
Vermont				Charlotte	90	50
Do				Woodstock	89	36
Virginia	Lynchburg	95	56	Johnsontown	95	64
Do	Fort Myer	91	49	Wytheville	86	45
Washington	Dayton	100	36	Fort Spokane	100	35
West Virginia				Helvetia	88	43
Wisconsin	La Crosse	89	52	Lancaster	91	44
Do	Milwaukee	88	51	Neillsville	90	41
Wyoming	Cheyenne	90	36	Fort Washakie	92	32
Do				Fort Bridger	88	26

FROSTS.

Colorado.—Pike's Peak, 5th, 6th, 13th, 26th; Fort Collins, 20th, 22d, 23d.

Connecticut.—Southington, 28th.

Dakota.—Webster, 27th. At Fort Buford, a heavy frost occurred on the 27th, killing garden vegetables.

Indiana.—Griffin station, 24th; Wabash, 24th, 25th.

Iowa.—Dubuque, 4th; Nora Springs, 22d, 23d; Cresco, 23d, Independence, 23d; Manchester, 23d, 24th.

Maine.—Cornish, 28th, 29th; Portland, 27th, 31st; Bangor, 29th; Orono, 29th.

Massachusetts.—Rowe, 27th, 28th; Westborough, 27th, 28th, 30th; Milton, 28th, 29th; Fall River, 30th.

Michigan.—East Tawas, 3d; Traverse City, 5th, 14th, 15th; Marquette, 14th; Escanaba, 14th, 15th; Alpena, 14th, 15th, 27th; Lansing, 25th, 26th; Ionia, 27th; Northport, 27th.

Montana.—Fort Maginnis, 22d; Fort Shaw, 22d; Poplar River, 22d. At Fort Custer, all vegetables in the post garden were injured by the heavy frost of the 22d.

Nebraska.—Clear Creek: the light frost of the morning of the 23d caused slight injury to vegetables.

Nevada.—Carson City: frost occurred here on the morning of the 13th, killing garden vegetables. Frosts also occurred here on the 20th, 21st, 22d.

New Hampshire.—Mount Washington, 7th, 14th to 17th, 26th to 31st. At Grafton, the first killing frost occurred on the mornings of the 27th and 28th.

New York.—Factoryville, 7th, 27th; Palermo, 27th; Friendship, 27th; Humphrey, 28th; Menand station (near Albany), 28th. Kiantone: frost occurred in this locality on the 27th, causing serious injury to corn and other crops.

Pennsylvania.—Wellsboro', 7th, 8th, 27th; Dyberry, 7th, 8th, 25th to 28th. Erie: frost occurred in the southern part of Erie county on the morning of the 26th, which proved destructive to the buckwheat crop. In the French valley, fourteen miles north of Erie, many acres of corn were ruined.

Utah.—Nephi, 20th.

Vermont.—Woodstock, 15th, 20th, 27th; Strafford, 27th; Saint Johnsburg, 28th.

Wisconsin.—Neillsville, 23d; Lancaster, 24th.

ICE.

Mount Washington, New Hampshire: ice formed in pools to a thickness of three-fourths of an inch on the 27th.

Wabash, Indiana: ice was reported to have formed in this locality on the morning of the 24th.

PRECIPITATION.

[*Expressed in inches and hundredths.*]

The distribution of rainfall over the United States and Canada for the month of August, 1883, as determined from reports from more than six hundred stations, is exhibited on chart iv.

The rainfall for August, 1883, has been below the average over the whole country, with the exception of the extreme northwest, and the northern and middle slopes. The deficiencies are marked in the districts on the Atlantic and Gulf coasts, and also in the upper lake region, upper Mississippi and Ohio valleys. In the lower lake region, Missouri valley, and Tennessee, the deficiencies are small and vary from 0.29 in the Missouri valley, to 0.61 in the lower lake region. In the Atlantic and Gulf states, from Virginia to Texas, the rainfall for the preceding month was below the average, and the small average precipitation in the same states during August has not been sufficient to terminate the drought which prevailed during July.

In the first column of the following table is given the average rainfall for August in the various districts for several years; in the second column is given the average of August, 1883; and the third column shows the excess or deficiency of August, 1883, as compared with the average of that month in previous years:

Average precipitation for August, 1883.

Districts.	Average for August. Signal-Service observations.		Comparison of Aug., 1883, with the average for several years.
	For several years.	For 1883.	
	Inches.	*Inches.*	*Inches.*
New England	4.33	1.53	2.80 deficiency.
Middle Atlantic states	4.95	3.20	1.75 deficiency.
South Atlantic states	6.43	7.51	0.72 deficiency.
Florida peninsula	7.67	5.69	1.98 deficiency.
Eastern Gulf	6.33	4.39	1.94 deficiency.
Western Gulf	4.27	1.62	2.65 deficiency.
Tennessee	3.92	3.51	0.41 deficiency.
Ohio valley	3.70	1.94	1.76 deficiency.
Lower lakes	2.91	2.30	0.61 deficiency.
Upper lakes	3.12	1.25	1.87 deficiency.
Extreme northwest	2.50	2.70	0.20 excess.
Upper Mississippi valley	3.40	1.87	1.53 deficiency.
Missouri valley	2.81	2.52	0.29 deficiency.
Northern slope	1.39	1.83	0.44 excess.
Middle slope	1.42	3.65	2.23 excess.
Southern slope	2.99	1.95	1.04 deficiency.
Southern plateau	3.16	2.26	0.90 deficiency.
North Pacific coast	0.78	0.08	0.70 deficiency.
Middle Pacific coast	0.02	0.00	0.02 deficiency.
South Pacific coast	0.22	0.07	0.15 deficiency.
Mount Washington, N. H.	7.67	6.06	1.61 deficiency.
Pike's Peak, Col.	4.81	2.22	2.59 deficiency.
Salt Lake City, Utah	0.88	0.62	0.26 deficiency.
Brownsville, Texas	5.94	1.97	3.97 deficiency.

Chart iv. shows the heaviest precipitation to have occurred along the immediate coast from Charleston, South Carolina, to Jacksonville, Florida, and in the vicinities of Kittyhawk, North Carolina, and Pensacola, Florida. At Kittyhawk, the monthly rainfall was 12.39, or 4.89 above the August average; of this amount, 10.75 fell during the 15th and 16th, and 8.14 fell between 8.50 a. m., and 1 p. m., of the 15th, which is the heaviest precipitation that has been recorded at that place during the last eight years. Notwithstanding these heavy rainfalls, the general averages for the south Atlantic and east Gulf states have been below the normal, which is due to the small extent of the areas of excessive precipitation.

No rain fell in the middle Pacific coast region during August, and in the north Pacific coast region the average rainfall for the district was 0.08, or a deficiency of 0.70. On the summits of Mount Washington, New Hampshire, and Pike's Peak, Colorado, the monthly rainfall has been 1.61 and 2.59 below the average, respectively.

DEVIATIONS FROM AVERAGE PRECIPITATION.

The departures exhibited by the reports from the regular Signal-Service stations are shown in the table of average precipitation for August, 1883. Voluntary observers report the following notes in connection with this subject:

Connecticut.—Southington, Hartford county: monthly rainfall 1.66. In only three of the last twenty-nine years has the August rainfall been less than this amount.

Illinois.—Anna, Union county: monthly rainfall, 4.02, is 0.76 below the August average of the last eight years.

Riley, McHenry county: monthly rainfall, 1.17, is 3.32 below the August average of the last twenty-two years. The rainfall for the summer season of 1883 is 3.65 below the average of the same period.

Indiana.—Vevay, Switzerland county: monthly rainfall, 2.27, is 0.92 below the August average of the last eight years.

Wabash, Wabash county: monthly rainfall, 2.11, is 1.02 below the August average of seven years.

Logansport, Cass county: monthly rainfall, 2.61, is 0.63 below the average of August since 1859. During that period the largest August precipitation, 9.14, occurred in 1876; the smallest, 0.29, occurred in 1861.

Kansas.—Lawrence, Douglas county: monthly rainfall, 2.12, is 1.44 below the August average of sixteen years. The total precipitation for the eight months ending August 31st is 31.15, or 6.55 above the average of the corresponding period for the last fifteen years.

Wellington, Sumner county: monthly rainfall, 3.51, is 1.66 above the average of the last four years.

Maine.—Gardiner, Kennebec county: monthly rainfall, 0.32, is 3.44 below the August average of forty-seven years, and with the exception of 0.20 in 1876, it is the smallest August rainfall for that period.

Maryland.—Fallston, Harford county: monthly rainfall, 3.56, is 1.50 below the August average of twelve years.

New Hampshire.—Grafton, Grafton county: monthly rainfall, 1.44,is 0.46 below the average of five years.

New York.—North Volney, Oswego county.: monthly rainfall, 1.50, is 0.85 below the August average of twelve years. The total rainfall for the summer months is 10.00, or 0.59 below the average of summer for the last eleven years. The largest summer rainfall of that period, 14.30, occurred in 1874; the smallest, 6.10, occurred in 1876.

The general distribution of rainfall during the month of August, and the districts of maximum departures from the August normal, of each year since 1873, are as follows:

Districts.	Maximum departures.	Year.	Remarks.
		1873	Marked excesses in Minnesota and the middle Atlantic states; normal in the south Atlantic and east Gulf states; deficient in the other districts.
New England	+ 2.60	1874	*Excessive in New England, Tennessee, upper Mississippi valley, and Minnesota; normal in California; deficient in the lake region, in the Missouri, Ohio, and Saint Lawrence valleys, and in the states bordering on the Atlantic and Gulf from New Jersey to Texas. Serious drought prevailed in the lower lake region, Ohio valley, and Gulf states, and from northern Texas to Nebraska.*
Minnesota	+ 1.50		
Tennessee	+ 1.30		
Western Gulf	— 3.40		
South Atlantic states	— 2.30		
Saint Lawrence valley	— 2.00		
Middle Atlantic states	+ 5.80	1875	Normal in the Saint Lawrence valley; deficient in the Ohio valley and Tennessee, and on the Pacific coast; above the average in all other districts, the excess in the middle Atlantic states being unusually large.
Missouri valley	+ 1.70		
Western Gulf	+ 1.45		
Pacific coast	— 0.35		
Ohio valley and Tennessee	— 0.35		
Upper Mississippi valley	+ 1.55	1876	Excessive in Minnesota, the upper Mississippi, Missouri, and Ohio valleys, upper lake region, and west Gulf states; deficient in the Saint Lawrence valley, lower lake region, and middle Atlantic states; normal in the south Atlantic and East Gulf states, and on the Pacific coast.
Ohio valley	+ 1.20		
Upper Missouri valley	+ 1.20		
New England	— 3.05		
Middle Atlantic states	— 2.25		
Lower lakes	— 1.75		
Portland, Oregon	+ 1.06	1877	Normal in the lower lake region and Saint Lawrence valley; slight excesses in the upper lake region, New England, and Tennessee; deficient in California, Minnesota, the upper Mississippi and Ohio valleys, and in the south Atlantic and Gulf states. An excess of 1.06 occurred *at Portland, Oregon.*
Upper lakes	+ 0.73		
New England	+ 0.70		
Middle Atlantic states	— 2.50		
Minnesota	— 1.58		
Western Gulf	— 1.56		
Middle Atlantic states	+ 2.02	1878	Excessive in the Saint Lawrence valley and in the states bordering on the Atlantic and Gulf; deficient in the districts north of the Ohio and Missouri rivers and on the Pacific coast.
Saint Lawrence valley	+ 1.10		
New England	+ 0.81		
Upper Missouri valley	— 1.91		
Minnesota	— 1.40		
Upper lakes	— 0.83		
Eastern Gulf	+ 6.26	1879	Deficient in the districts from the Saint Lawrence valley and New England westward to the Rocky mountains, and in California; very large excesses in the Ohio valley, middle Atlantic and Gulf states; slight excesses in the south Atlantic states and at Portland, Oregon.
Ohio valley	+ 4.60		
Middle Atlantic states	+ 3.75		
Missouri valley	— 1.88		
Minnesota	— 1.78		
Upper Missouri valley	— 1.40		
Florida peninsula	+ 4.03	1880	Excessive in New England, the south Atlantic states, Florida, and from the lake region westward to the Rocky mountains; deficient in the Saint Lawrence and Ohio valleys, middle Atlantic and Gulf states, and on the Pacific coast.
Lower lakes	+ 1.70		
Lower Missouri valley	+ 1.32		
Eastern Gulf	— 1.47		
Saint Lawrence valley	— 1.21		
Western Gulf	— 0.99		
Minnesota	+ 1.50	1881	Excessive in the east Gulf states, Florida, Minnesota, and in the north Pacific coast region; deficient in all other districts. Serious drought prevailed over nearly the whole country east of the Rocky mountains.
Florida	+ 1.42		
Eastern Gulf	+ 1.35		
Middle Atlantic states	— 3.46		
Ohio valley	— 3.23		
New England	— 2.75		
Southern slope	+ 4.59	1882	Excessive in the districts from the lake region and middle Atlantic states southwestward to *Texas, New Mexico,* and Arizona; deficient in New England, the upper Mississippi and Missouri valleys, extreme northwest, northern and middle slopes, north and south Pacific coast regions, and in Florida; normal in the south Atlantic states.
Eastern Gulf	+ 3.21		
Western Gulf	+ 1.90		
New England	— 2.84		
Missouri valley	— 2.34		
Extreme northwest	— 1.79		

Table of Excessive, Greatest, and Least Monthly Rainfalls.

Station.	Specially heavy.			Largest monthly.	Smallest monthly.	
	Date.	Amt.	Duration	Amount.	Station.	Amt.
Alabama.					*Arizona.*	
Mobile	6	3.30	3hr. 30m.	6.47	Yuma	0.22
Do	11	1.12	40 m.		*California.*	
Calera	2	4.90			Alta	0.00
Do	23	2.30			Antioch	0.00
Arizona.					Auburn	0.00
Fort Apache	3	2.57			Borden	0.00
Fort Thomas	18, 19	1.69			Brentwood	0.00
Arkansas.					Brighton	0.00
Lead Hill	1, 2	3.57			Byron	0.00
Mount Ida	6	2.55			Caliente	0.00
Delaware.					Calistoga	0.00
Saint George	2	3.20			Cape Mendocino	0.00
District of Columbia.					Chico	0.00
Washington	23	1.34	1 hr. 55 m.		Cisco	0.00
Florida.					Colfax	0.00
Pensacola	8, 9	2.20		8.75	Colton	0.00
Do	25, 20	2.55			Davis	0.00
Archer	3	2.48		8.61	Delano	0.00
Do	7	2.00			Dunnigan	0.00
Jacksonville	25, 26	3.11		7.63	Emigrant Gap	0.00
Sanford				6.74	Farmington	0.00
Waldo	8, 9	3.24		6.63	Fenner	0.00
Fernandina	8, 9	3.94		6.41	Fort Bidwell	0.00
Mayport	8, 9	2.24			Fort Gaston	0.00
Georgia.					Fresno	0.00
Griffin Station	8	10.38	8 hours	12.90	Galt	0.00
Savannah	7, 8	6.33		9.28	Gilroy	0.00
Jesup	7	2.02		9.22	Goshen	0.00
Walthourville				9.15	Hollister	0.00
Rome				7.80	Ione	0.00
Brunswick	1	2.20		7.78	Keen	0.00
Thomasville	22	2.80		7.37	Kingsburg	0.00
Newnan				6.47	Livermore	0.00
Gainesville	26	2.80		6.29	Los Angeles	0.00
Albany	22	2.80		6.17	Martinez	0.00
Cartersville	15, 16	3.41			Menlo Park	0.00
Forsyth	8	2.05			Merced	0.00
Indiana.					Modesto	0.00
Spiceland	23	2.78		6.35	Mojave	0.00
Evansville	15	3.39			Monterey	0.00
Indian Territory.					Napa	0.00
Fort Reno	6	3.50			Newhall	0.00
Iowa.					Niles	0.00
Logan	7	2.20			Oakland	0.00
Dubuque	19	1.19	1 hr. 9 m.		Oakwood	0.00
Kansas.					Orland	0.00
Topeka	18	2.01			Pajaro	0.00
Louisiana.					Petaluma	0.00
Alexandria	18	3.00		8.00	Pleasanton	0.00
Do	22	3.11			Princeton	0.00
New Orleans	17	2.08	2 h. 25 m.		Ravenna	0.00
Maryland.					Red Bluff	0.00
Fort McHenry	29	2.70			Reading	0.00
Michigan.					Rocklin	0.00
Litchfield	20	2.18			Sacramento	0.00
Minnesota.					Salinas City	0.00
Northfield	17	2.26			San Diego	0.00
Saint Vincent	19	2.15			San Fernando	0.00
Mississippi.					San Francisco	0.00
Columbus	24	2.30			San Jose	0.00
Brookhaven	16	2.19			San Mateo	0.00
Missouri.					Santa Cruz	0.00
Carthage				6.42	Solidad	0.00
Saint Louis	15	1.85	1 h. 25 m.		South Vallejo	0.00
Nebraska.					Spadra	0.00
Lincoln	11	6.50?		11.25?	Stockton	0.00
Do	17	4.25?			Suisun	0.00
Fremont	17	2.00			Summit	0.00
New Hampshire.					Sumner	0.00
Mount Washington				6.06	Tehachapi	0.00
New Jersey.					Tehama	0.00
Reading				6.00	Tennant	0.00
Somerville	2	2.58			Tracy	0.00
Sandy Hook	2	2.19			Tulare	0.00
Freehold	2	2.06			White Water	0.00
New Mexico.					Willows	0.00
Fort Bayard				7.67	Woodland	0.00
Fort Union	12	2.34	50 m.		Anaheim	t'ce
New York.					Poway	t'ce
Penn Yan	28	2.20			Daggets	0.06
Ithaca	28, 29	2.17			*Colorado.*	
Friendship	28, 29	2.00			Fort Lyon	0.24
North Carolina.					*Dakota.*	
Kittyhawk	15	8.14		12.39	Fort Yates	0.09
Do	16	2.16			Fort Meade	0.36
Goldsboro'	16	3.20		6.26	*Idaho.*	
Lenoir	26	2.50		6.00	Lewiston	0.00
Wilmington	25	3.40	5 h. 45 m.		Coeur d'Alene	0.08
Nova Scotia.					Fort Lapwai	0.14
Sidney				6.10	*Louisiana.*	
Ohio					Point Pleasant	t'ce
Cleveland	28	1.78			Coushatta	0.06
Columbus	28	1.40	40 m.		Grand Cotoau	0.42
Pennsylvania.					*Maine.*	
Hulmerville	1, 2	4.65			Gardiner	0.32
Fallsington	1, 2	4.53			Portland	0.36
West Chester	2	3.95			Fort Preble	0.40
Philadelphia	2	2.80	7 h 30 m.		Eastport	0.49
South Carolina.					*Massachusetts.*	
Yemassee	17, 18	6.66		11.17	Charleston	0.32
Charleston	8	4.88		10.05	Boston	0.39
Do	17, 18	2.59			*Michigan.*	
Tennessee.					Ione	0.07
Manchester				6.38	Lansing	0.21
Riddleton				6.28	Kalamazoo	0.42

Table of Excessive, Greatest, and Least Monthly Rainfalls.—Continued.

Station.	Specially heavy.			Largest monthly.	Smallest monthly.	
	Date.	Amt.	Duration.	Amount.	Station.	Amt.
Tennessee.—Continued.					*Michigan.*—Cont'd.	
Milan	15	3.05			Grand Haven	0.46
Nashville	1, 2	2.64			*Minnesota.*	
Texas.					Minneapolis	0.47
Fort Elliott	6, 7	2.05		6.56	*Mississippi.*	
Withe	2, 3	5.30			Macon	0.05
Paris	4, 5, 6	5.18			*Missouri.*	
Fort Concho	22, 23	2.73			Mexico	0.19
Virginia.					Warrenton	0.40
Chincoteague	29, 30	4.46		7.43	*Montana.*	
Wisconsin.					Fort Maginnis	0.37
Neillsville	17	2.90			*Nevada.*	
					Boca	0.00
					Beowawe	0.00
					Golconda	0.00
					Hot Springs	0.00
					Humboldt	0.00
					Reno	0.00
					Truckee	0.00
					Brown's	0.01
					Carson City	0.02
					Winnemucca	0.05
					Palisade	0.10
					Toano	0.13
					Otego	0.14
					Tecoma	0.15
					Wells	0.28
					Oregon.	
					Eola	0.00
					Roseburg	0.03
					Albany	0.08
					Fort Klamath	0.10
					Portland	0.19
					Texas.	
					Hearne	t'ce
					Belton	0.05
					Rio Grande City	0.10
					Cuero	0.26
					Palestine	0.30
					Houston	0.37
					Utah.	
					Promontory	0.08
					Kelton	0.10
					Corinne	0.20
					Blue Creek	0.40
					Washington.	
					Fort Canby	t'ce
					Olympia	0.01
					Bainbridge Island	0.06
					Fort Spokane	0.15
					Dayton	0.30
					Fort Townsend	0.30
					Wisconsin.	
					Milwaukee	0.38
					Sussex	0.48
					Wyoming.	
					Fort Washakie	0.20
					Fort Bridger	0.50

Ohio.—Wauseon, Fulton county: monthly rainfall, 1.67, is 1.37 below the August average of eleven years. The largest August rainfall of that period, 4.72, occurred in 1880; the smallest, 1.25, occurred in 1881.

Pennsylvania.—Dyberry, Wayne county: monthly rainfall, 0.95, is 2.03 below the August average of twelve years.

Texas.—New Ulm, Austin county: monthly rainfall, 2.19, is 1.28 below the August average of twelve years. The largest August rainfall during that period, 8.38, occurred in 1878; the smallest, 0.55, occurred in 1877.

Vermont.—Woodstock, Windsor county: monthly rainfall, 1.04, is 1.47 below the August average of the last fifteen years. The largest August rainfall of that period, 6.75, occurred in 1872; the smallest, 0.81, occurred in 1876.

Virginia.—Variety Mills, Nelson county: monthly rainfall, 2.29, is 1.70 below the August average of the last five years.

West Virginia.—Helvetia, Randolph county: monthly rainfall, 1.73, is 3.35 below the August average of the last seven years.

HAIL.

Rochester, New York.—On the afternoon of the 2d a severe hail storm occurred at points north of this city; hailstones, varying from the size of a pea to half an inch in diameter, fell for about twenty minutes, destroying fields of oats and wheat, stripping acres of corn and breaking the glass in dwellings and green-houses.

Cheyenne, Wyoming.—Heavy hail fell at this place from 2.20 to 2.30 p. m. of the 5th.

Saint Vincent, Minnesota.—A heavy rain storm occurred

between 4 and 5.20 p. m. of the 8th, during which considerable hail fell. At a point of five miles west of this place the hailstones are reported to have been as large as hens' eggs, and caused much damage to corn and wheat.

Clear Creek, Saunders county, Nebraska.—A severe hail storm occurred five miles south of this place on the 13th, causing much damage to the growing corn.

Bismarck, Dakota.—Heavy hail fell at this station between 5.38 and 5.40 p. m. of the 18th. At points north and east of here considerable damage was done to the grain fields.

Niagara, Dakota.—A severe hail storm occurred south of this place at about 4 a. m. of the 19th. The storm passed from the southern edge of Devil's lake northeastward between this place and Larimore. The wheat crop suffered serious injury on Forest river and in Elk valley.

Very large hail accompanied the storm of the night of the 7–8th, in Iowa, which is described under the heading "local storms."

Hail storms of less severity have been reported from the various states as follows:

Arizona.—Fort Thomas, 9th; Fort Grant, 25th.

Arkansas.—Lead Hill, 1st.

Colorado.—Fort Garland, 23d, 25th.

Connecticut.—Southington, 1st, 8th, 19th, 23d.

Dakota.—Alexandria, 17th; Deadwood, 14th; Fort Hale, 8th; Fort Sisseton, 28th; Fort Totten, 17th, 18th.

Georgia.—Atlanta, 13th.

Iowa.—Guttenburg, 10th.

Minnesota.—Moorhead, 27th.

Nebraska.—Clear Creek, 8th; De Soto, 7th; Utica, 8th, 11th.

New Hampshire.—Contocookville, 20th.

New Mexico.—Fort Union, 12th.

New York.—Albany, 19th; Ardenia, 13th; Friendship, 18th; New York City, 19th.

Pennsylvania.—Wellsboro', 23d.

Tennessee.—Austin, 15th; Milan, 1st, 15th.

Texas.—Fort Concho, 22d.

Wisconsin.—Beloit, 27th.

SNOW.

Fort Collins, Colorado.—Light snow fell at this place during the early morning of the 1st.

Fort Shaw, Montana.—Heavy rain fell during the afternoon of the 21st, changing to snow at 6.15 p. m., which continued for thirty-five minutes.

Snow fell on the summit of Pike's Peak, Colorado, on the 2d, 3d, 4th, and from the 9th to 12th.

SLEET.

On the summit of Pike's Peak, Colorado, sleet was reported on the following dates: 1st to 5th, 8th, 9th, 11th, 12th, 15th, 25th, 27th, 28th.

Table of rainy and cloudy days, relative humidity, and dew-point for Aug., 1883.

Districts.	Rainy days.	Cloudy days.	Rel. humidity.*	Dew-point.
			Percentages.	° °
New England	From 7 to 12	From 1 to 6	From 66.6 to 79.6	From 55.1 to 62.2
Middle Atlantic states	" 5 " 10	" 3 " 4	" 60.8 " 83.2	" 54.4 " 66.8
South Atlantic states	" 10 " 17	" 2 " 12	" 61.6 " 82.6	" 61.3 " 73.7
Florida peninsula	" 10 " 18	Three	" 71.3 " 77.1	" 72.1 " 74.3
East Gulf	" 8 " 16	From 0 to 3	" 69.1 " 77.1	" 68.5 " 72.8
West Gulf	" 4 " 10	" 0 " 6	" 65.0 " 75.6	" 66.2 " 73.8
Ohio valley	" 8 " 13	" 3 " 5	" 61.6 " 65.9	" 54.9 " 59.6
Tennessee	" 9 " 17	" 3 " 4	" 72.1 " 76.4	" 62.1 " 66.4
Lower lakes	" 8 " 12	" 2 " 6	" 64.7 " 72.1	" 54.2 " 57.5
Upper lakes	" 5 " 13	" 1 " 8	" 67.1 " 77.9	" 49.9 " 57.1
Extreme northwest	" 9 " 11	" 3 " 5	" 66.7 " 81.8	" 51.9 " 54.2
Upper Mississippi valley	" 5 " 12	" 2 " 9	" 66.0 " 71.4	" 55.4 " 64.3
Missouri valley	" 8 " 16	" 4 " 7	" 68.4 " 78.1	" 56.8 " 62.7
Northern slope	" 2 " 15	" 1 " 14	" 40.6 " 72.2	" 35.0 " 59.2
Middle slope	" 8 " 12	" 0 " 9	" 48.6 " 58.0	" 47.5 " 56.8
Southern slope	" 4 " 8	" 0 " 3	" 50.7 " 56.5	" 57.8 " 61.0
Southern plateau	" 5 " 20	" 0 " 5	" 42.3 " 65.6	" 53.6 " 59.8
Northern plateau	" 1 " 2	none	" 46.9 " 48.3	" 45.9 " 49.0
North Pacific	" 1 " 4	From 0 to 7	" 63.0 " 71.9	" 48.6 " 52.8
Middle Pacific	" 0 " 1	" 0 " 6	" 33.7 " 89.2	" 45.2 " 54.4
South Pacific	" 0 " 5	" 0 " 3	" 49.8 " 76.4	" 58.6 " 67.4
Mt. Washington, N. H.	Sixteen	none	92.0	41.6
Pike's Peak, Col	Fifteen	One	73.5	30.3
Salt Lake City, Utah	Seven	Three	35.4	45.6

* Relative humidity corrected for altitude.

COTTON REGION REPORTS.

Temperature and rainfall observations in the cotton region were continued during August, 1883. The averages for the various districts are determined from observations made at the stations, as shown on chart vi., issued with the REVIEW for April, 1882. For the purpose of comparison, the averages for August, 1882, and those for August, 1883, with the departures, are given in the table below:

Meteorological Record of the Cotton Districts for the months of August, 1882 and 1883.

Districts.	Average rainfall in inches.			Temperatures.						Extremes for Aug., 1883.	
				Mean of the maxima.		Change.	Mean of the minima.		Change.		
	1882.	1883.	Departures.	1882.	1883.		1882.	1883.		Max.	Min.
				°	°	°	°	°	°	°	°
New Orleans	8.38	2.70	— 5.68	89.8	90.9	+ 1.1	72.0	70.4	— 1.6	103	55
Savannah	6.21	5.64	— 0.57	90.6	91.0	+ 1.0	71.0	71.4	+ 0.4	105	62
Charleston	6.12	5.66	— 0.46	90.4	90.0	— 0.4	68.9	68.5	— 0.4	100	54
Atlanta	5.99	5.03	— 0.96	85.7	89.0	+ 3.3	67.5	67.0	— 0.5	99	51
Wilmington	6.24	2.96	— 3.28	87.8	88.7	+ 0.9	67.8	67.5	— 0.3	108	49
Memphis	4.30	3.41	— 0.89	87.1	87.5	+ 0.4	67.2	65.0	— 2.2	98	50
Galveston	5.42	0.93	— 4.49	91.7	96.3	+ 4.6	70.2	73.4	+ 3.2	106	61
Vicksburg	4.66	2.60	— 2.06	89.1	92.5	+ 3.4	69.6	69.8	+ 0.2	99	55
Montgomery	4.01	3.16	— 0.85	88.6	92.2	+ 3.6	68.7	68.7	0.0	99	47
Augusta	4.26	3.13	— 1.13	88.4	90.4	+ 2.0	68.8	68.1	— 0.7	102	51
Little Rock	3.44	3.41	— 0.03	88.3	91.9	+ 3.6	65.3	65.6	+ 0.3	103	54
Mobile	3.96	2.32	— 1.64	90.2	93.7	+ 3.5	70.0	68.9	— 1.1	103	48

From the above table it will be seen that, as in the preceding month, the average rainfall of August, 1883, is below that of August, 1882, the deficiencies being largest in the districts of New Orleans and Galveston, where they are 5.68 and 4.49, respectively. The means of the maxima temperatures for August, 1883, have been higher in all districts except for the district of Charleston, while the means of minima temperatures differ but little from those of August, 1882.

WINDS.

The most frequent directions of the wind during the month of August, 1883, at the Signal Service stations are shown on chart iii., by arrows flying with the wind. Over the greater part of the country they were variable; in Tennessee, the south Atlantic and east Gulf states, they were mostly from the northeast; in Texas and the Ohio valley, they were southerly; on the north Pacific coast, they were northerly; and on the California coast, they were from the west and northwest.

TOTAL MOVEMENTS OF THE AIR.

[*In miles.*]

In the following table are given the stations reporting the largest and smallest total movements of the air in each of the various districts:

Districts.	Stations reporting largest.	Miles.	Stations reporting smallest.	Miles.
New England	Block Island, R. I.	9,452	New London, Conn.	3,233
Middle Atlantic states	Barnegat City, N. J.	10,046	Lynchburg, Va.	2,240
South Atlantic states	Hatteras, N. C.	11,301	Augusta, Ga.	2,329
Florida peninsula	Cedar Keys	5,492	Sanford	3 641
East Gulf	Pensacola, Fla.	4,631	New Orleans, La.	2,275
West Gulf	Indianola, Tex.	6,710	Fort Smith, Ark.	2,401
Ohio valley	Louisville, Ky.	4,660	Indianapolis	2,545
Tennessee	Memphis	3,512	Chattanooga	3,087
Lower lakes	Sandusky, Ohio	7,597	Cleveland, Ohio	4,985
Upper lakes	Milwaukee, Wis.	7,063	Duluth, Minn.	4,239
Extreme northwest	Fort Buford, Dak.	6,696	Saint Vincent, Minn.	4,296
Upper Mississippi valley	Saint Louis, Mo.	5,347	Dubuque, Ia.	3,237
Missouri valley	Huron, Dak.	6,420	Omaha, Neb.	1,621
Northern slope	North Platte, Neb.	6,000	Deadwood, Dak.	2,533
Middle slope	West Las Animas, Col.	5,583	Denver, Col	4,409
Southern slope	Fort Stockton, Tex.	5,976	Coleman City, Tex.	4,056
Southern plateau	Fort Apache, Ariz.	4,138	El Paso, Tex	2,694
Northern plateau	Dayton, Wash.	3,771	Spokane Falls, Wash.	2,557
North Pacific	Portland, Oregon	2,289	Olympia, Wash	1,371
Middle Pacific	San Francisco, Cal.	9,029	Red Bluff, Cal.	3,695
South Pacific	Los Angeles, Cal.	3,924	Yuma, Arizona	3,524

On the summits of Mount Washington, New Hampshire, and Pike's Peak, Colorado, the total movements of the air were 25,550, and 9,268, miles, respectively.

HIGH WINDS.

On the summit of Mount Washington, New Hampshire,